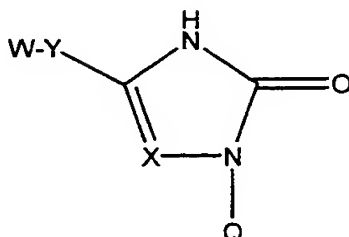


**CLAIMS**

1. A compound having the structure



5

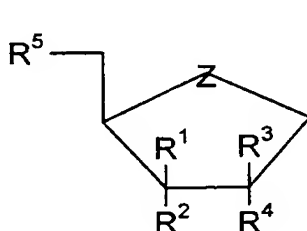
where X is CH or N,

Y is -CO-, -CONW-, -O-, -S-, -SO-, -SO<sub>2</sub>-, -NWCO-, -NW-, or -  
OCO-,

W is the same or different at different places in the molecule  
and each is H or alkyl or aryl or Rp or -Ln-Rp,  
Ln is a linker group,  
Rp is a reporter moiety, and  
Q is a sugar or a sugar analogue or a nucleic acid backbone  
or backbone analogue,

provided that at least one reporter moiety Rp is present.

2. The compound as claimed in claim 1, wherein Q is



20

where Z is O, S, Se, SO, NW or CH<sub>2</sub>,

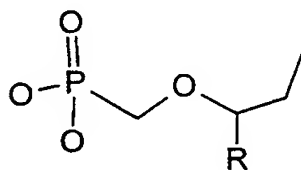
R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup> and R<sup>4</sup> are the same or different and each is H,

OH, F, NH<sub>2</sub>, N<sub>3</sub>, O-hydrocarbyl or Rp or -Ln-Rp,

R<sup>5</sup> is OH, SH or NH<sub>2</sub> or mono-, di- or tri-phosphate or -  
thiophosphate, or corresponding boranophosphate,

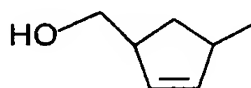
or one of R<sup>2</sup> and R<sup>5</sup> is a phosphoramidite or other group for  
incorporation in a polynucleotide chain, or a reporter moiety,  
or Q consists of one of the following modified sugar structures

#### Acyclic Sugars



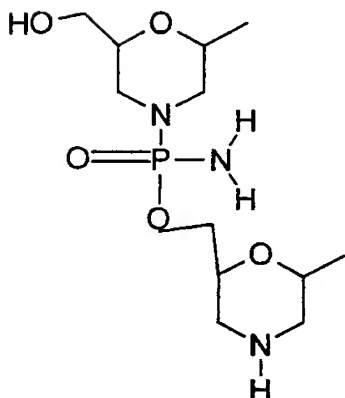
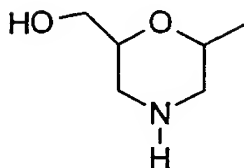
10

R = CH<sub>3</sub>, CH<sub>2</sub>OH, H,



15

## Morpholino Backbone



3. The compound of claim 1 or claim 2, wherein a reporter moiety Rp is not present in Q.
- 5 4. The compound of any one of claims 1 to 3, wherein the linker group Ln is a chain of 1 to 60 carbon, nitrogen, oxygen, phosphorus and/or sulphur atoms, rigid or flexible, saturated or unsaturated.
5. The compound of any one of claims 1 to 4, wherein the
- 10 reporter moiety Rp is a signal moiety or a solid surface or a reactive group by means of which a signal moiety or a solid surface may be linked to the nucleoside or nucleotide analogue.
6. The compound of claim 5, wherein the reactive group is NH<sub>2</sub>,
- 15 OH, COOH, CONH<sub>2</sub>, ONH<sub>2</sub>, SH, or a thiophosphate or a hydrazine or a hydrazide, or an active ester or aldehyde or maleimide.

7. A nucleoside analogue comprising a compound according to any one of claims 1 to 6.

8. A nucleotide analogue comprising a compound according to  
5 any one of claims 2 to 6.

9. The nucleotide analogue of claim 8, wherein R<sup>5</sup> is triphosphate.

10 10. A polynucleotide chain comprising a nucleoside analogue of claim 7.

11. A polynucleotide chain according to claim 10 wherein Q is a nucleic acid backbone consisting of sugar-phosphate repeats or modified  
15 sugar-phosphate repeats (LNA), or a backbone analogue such as peptide or polyamide nucleic acid (PNA).

12. A chain extension method which comprises reacting a polynucleotide chain according to claims 10 or 11 with a primer in the  
20 presence of a polymerase.

13. A chain extension method according to claim 12 in which the primer is chosen to hybridise with a section of the polynucleotide chain not including the nucleoside analogue.

25 14. A method of detecting a nucleic acid which contains a compound according to any of claims 1 to 6, which method comprises the step of detecting the presence of the reporter moiety Rp.

30 15. A method as claimed in claim 14 in which the reporter moiety is a radioisotope, a stable isotope, a signal moiety or a specific chemical

moiety suitable for detecting by spectroscopy, especially mass spectroscopy.